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THERE was first read an extract from a letter of Professor Harding to Dr. J. L. Tiarks, dated Göttingen, Oct. 26, 1829.

"In the year 1799 I observed the sun very diligently at Lilienthal, with a 10-feet Dollond, and found that I was obliged to shorten, very considerably, the distance between the eye-glass and the object-glass of the telescope, in order to see the spots near the sun's *limb* as distinctly as those near the *centre* of the disc. Not being able to account for this circumstance, I consulted Dr. Olbers, who considered it to be a mere deception, as, if true, it could not arise from any thing but an increase of distance of the object. The sun's diameter, however, being very small in comparison with his distance from the earth, this cause could not exist in the present case. Six years after, (1805), M. Fritsch noticed the same circumstance, without saying whether he had to shorten or to lengthen the telescope for the objects near the sun's limb. Dr. Gruithuisen has lately again brought forward the same subject, in his *Analecta*, No. 4, § 70; but, quite contrary to my experience, he finds that, for objects near the sun's *limb*, he has to *lengthen*, and for objects near the *centre* of the sun, to *shorten* the distance of the eye-piece and object-glass; and assigns as the cause, the heated atmosphere of the sun, which, he contends, produces a negative refraction; and he then further endeavours to prove, that we necessarily always see the sun's diameter too small, contrary to the usually received opinion, that, on account of the irradiation, it will be always observed too great. Having been requested by him to investigate this subject, I have plainly told him, that my experience of many years had led me to results quite contrary to those obtained by him, and that I had accounted for what I had found, by the fact that the sun's limb appeared less bright than his centre, and that it was well known that less bright objects must be more nearly approached to the eye than brighter ones, in order to have the most distinct vision; — that, agreeably to this fact, I had my telescope shorter for observations of Mars and Saturn, than for those of Venus and Jupiter, which latter are more bright. I am very desirous of knowing what Messrs. Baily and South, and other observers in England, have found in this respect, and how they explain the phenomenon."

The next communication was a letter from Dr. Gregory, pointing out some errors in the places of the planet Ceres, at p. 36 of *White's Ephemeris* for the year 1830.

Dr. Gregory states, that the elements of *Ceres* having received farther correction from recent observations, the right ascensions and declinations of that planet, at and near the opposition in 1830, will be nearly as follow:—

	R.	Dec.
	h m s	° ′ ″
April 28, noon,	14 46 17	−4 12 54
29, —	14 45 23	4 11 31
30, 8.	14 44 28	4 10 13
May 1, noon,	14 43 34	4 9 1
2, —	14 42 39	−4 7 55

"The geocentric places of Ceres, *for every day at midnight*, (Berlin time), from April 14th to May 16th, are given at p. 248 of *Encke's Jahrbuch* for 1831.

"I may also add, for the advantage of those who may be speedily leaving this country for a year or two, and who prefer the use of the *Connaissance des Tems*, that, in that work for 1831, *the declinations of Jupiter are throughout erroneous, by nearly* 2°, *for the last six months of the year*. The mistakes may be easily corrected, nearly enough for most purposes, by means of the *Nautical Almanac*, or *Encke's Jahrbuch*. The *Connaissance* for 1832, in which these errors will probably be corrected, is not yet, I believe, arrived in England."

There was next read a paper containing "Remarks on Capt. Thomson's method and tables for working lunar observations at sea, by Baron Zach." The author states, that he was so struck with the remarkable simplicity and conciseness of this method, that he was induced to enter into an examination of the principles on which the tables were constructed, for the purpose of ascertaining whether they were also correct. With this view he computed a great variety of cases, many of which are of a difficult kind, and such as seldom occur in practice, for the purpose of putting those tables to a more severe test. The results he has compared with the solutions obtained by means of the rigorous trigonometrical formulæ used in such cases, and found them, in every instance, almost precisely the same, the difference being seldom more than 1″ or 2″, and in one case only amounting to so much as 6″. He then endeavours to ascertain the mode in which Capt. Thomson has deduced his corrections; and, after much examination, is led to believe that the method is obtained in an indirect manner, and not by means of any analytical expression; and, if so, that Capt. Thomson must have computed upwards of 30,000 cases, in order to complete his tables. This fact has since been confirmed by Capt. Thomson himself, who states, that he computed upwards of 80,000 cases for that purpose. Baron Zach observes, that the principal merit of Capt. Thomson's method is in the application of the *third* correction, since the *first* and *second* corrections are founded on the principles already laid down by Mr. Lyons. He is of opinion that the tables for these first and second corrections may be got rid of, by deducing them from the rigorous formulæ by means of a common table of logarithms; and that, in such case, the only *special* table required will be Capt. Thomson's table for the *third* correction. But, which-

ever mode be adopted for obtaining the first two corrections, he is persuaded that there is no table so concise and accurate, for finding the *third* correction, as that given by Capt. Thomson, who has rendered an important service to the practical navigator, by thus furnishing a method which "deserves to be introduced into, and patronised by, every maritime nation on the face of the globe."

Lastly, a paper was read on algebraical "Notation," by J. W. Lubbock, Esq., wherein the author laments the practice adopted by some writers, of using symbols to denote quantities, without due regard and attention to those made use of by their predecessors to denote similar quantities, whereby much confusion often arises. He therefore suggests a few general rules on this subject, for the consideration of mathematicians. 1. That the notation should never be changed without an adequate motive. 2. That the letters Σ, f, d, &c., which are commonly used as symbols of operation, should never be used as symbols of quantity. 3. That indices of situation should always be placed at the foot of the letter to which they refer. 4. That initial letters should generally be used as symbols of a word written at full length, such as t for time, r for radius vector, &c. 5. That the letters of the Greek alphabet should be used to denote angles. 6. That the same letter should never be used with different meanings. 7. That the letters x, y, z, should be used only for rectangular co-ordinates; with other rules of a similar import. To which was subjoined a Table, shewing the notation adopted by some of the most distinguished writers in astronomy, including also a separate column containing the corresponding letter which the author thinks preferable.

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